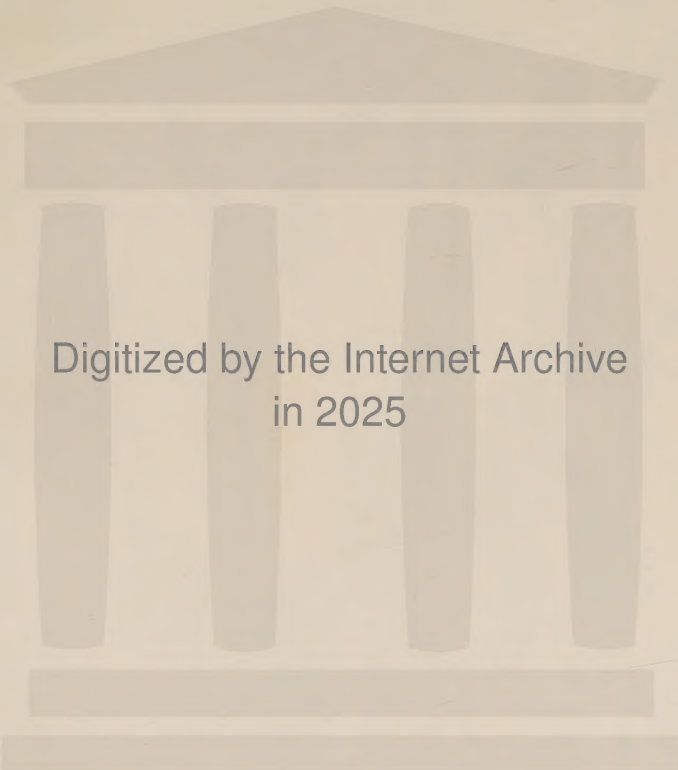


FLOWERS OF MOUNTAIN AND PLAIN



EDITH · S · CLEMENTS

Mayorie Ann Hyatt
given to me by
Mother - July 1951



Digitized by the Internet Archive
in 2025



Flowers of Mountain and Plain

Edith S. Clements, Ph. D.

THIRD EDITION

The H. W. Wilson Company
New York
1926

Copyright 1926 by
Edith S. Clements
Reprinted June 1945
Reprinted November 1949

Printed in the United States of America

PREFACE

"Flowers of Mountain and Plain" is intended primarily for travelers and flower lovers who wish a short cut to recognizing flowers seen on excursions or from car windows. It may also serve as a souvenir of pleasant summer days or vacation trips. The book consists of the twenty-five color plates to be found in "Rocky Mountain Flowers" (Clements and Clements, 1914), representing one hundred and seventy-five of the most beautiful and striking flowers of the mountains and plains of the West. If it succeeds in opening the eyes of the passer-by to an appreciation of the flowers by the way, or in further stimulating an already awakened interest, it will have served its purpose.

EDITH S. CLEMENTS.

University of Minnesota

March 30, 1915

PREFACE TO THE SECOND EDITION

Opportunity has been taken of the demand for a second edition of "Flowers of Mountain and Plain" to add a simple text to the plates. It is hoped that this will increase the interest in the flowers of the region and help create a sentiment in favor of their preservation.

EDITH S. CLEMENTS.

Alpine Laboratory,

Manitou, Colorado,

July 9, 1920.

Flowers of Mountain and Plain

BUTTERCUP FAMILY

MONKSHOOD, ACONITE ACONITUM COLUMBIANUM

Plate 1, fig. 1

The flowers of the Monkshood are usually deep purple-blue, but yellowish white ones are often found. The tall plants, 4-8 ft. high, grow in mountain meadows and along streams at 6000-12000 ft., and bloom from early July to late August. The Aconite disguises its relation to the buttercups by having irregular sepals, developed by insect visitors in search of nectar. The two nectaries are underneath and at the base of the cowl-shaped upper sepal which gives the plant its name. In seeking nectar, the bees crawl over the group of stamens and stigmas and in so doing either collect or deposit the pollen which clings to their legs and abdomens. The Monkshood is frequently cultivated in gardens and some of the species furnish a powerful drug, aconite, used in medicine. All are poisonous and often produce fatal results among stock when feed is scarce.

BLUE COLUMBINE AQUILEGIA COERULEA

Plate 1, fig. 2

This Columbine varies in color through several shades of blue and may rarely be white. It is the state flower of Colorado, growing in spruce and aspen woods, or in mountain meadows at 6500-12000 ft. It is usually 2-3 ft. high and blossoms from early summer to midsummer. Like the Monkshood and Larkspur, the columbines also belong to the group of irregular buttercups. The nectar is contained in the swollen tips of the petals. Pollination is effected by long-nosed bees which cling to the petals while inserting the proboscis up the spur and at the same time touch the group of pendant stamens with the underside of

BUTTERCUP ORDER

the body. Short-nosed bees are unable to get at the nectar in this way and steal the honey by biting holes in the tips of the spurs. The columbines make beautiful garden plants and the Blue Columbine as well as one or two other native species is cultivated. The ordinary columbine of the garden, however, belongs to the European *Aquilegia vulgaris*. The name "Aquilegia" is derived from the Latin "aquila," eagle, and probably refers to the resemblance of the spurred petals to eagles' talons.

RED COLUMBINE *AQUILEGIA CANADENSIS*

Plate 1, fig. 3

The blossoms of this plant are bright red, usually more or less tinged with yellow. It is 1-2 ft. tall, grows on wooded mountain-sides at 7500-11000 ft. and blooms in July and August. The mountain form has smaller, more brightly colored flowers than the eastern plant.

BLUE LARKSPUR *DELPHINIUM SCOPULORUM*

Plate 1, fig. 4

The Larkspur, like the Monkshood, has developed oddly shaped sepals, but the upper one, instead of resembling a cowl, is more like the spur of a bird. The common name refers to this resemblance. The plants grow as tall as 6-8 ft. and are found on foothills and mountain-sides at 5000-10000 ft. They bloom in midsummer and the flowers vary from pale blue to deep purple-blue. The Blue Larkspur, like many other species of larkspur, is poisonous to stock.

ANEMONE, WIND FLOWER *ANEMONE MULTIFIDA*

Plate 3, fig. 1

This Anemone is usually white, but it varies through pink to deep rose-red. It is 1-2 ft. tall, grows in meadows and on hillsides at 7000-12000 ft. and blooms throughout the summer. Most anemones

have an acrid juice which irritates the skin and is poisonous if taken internally. They make very attractive garden plants, though the native species are little cultivated as yet.

ALPINE CLEMATIS *CLEMATIS ALPINA*

Plate 3, fig. 2

The Alpine Clematis differs from the cultivated species in climbing but rarely. The plants are usually but a few inches high and bear very ornamental lavender or purple-blue flowers. Under favorable conditions they may clamber over shrubs for a few feet. They are found in open forest and woodland at 7000-10000 ft. The flowers open in spring and early summer and are visited by insects for the plentiful pollen, though they contain no honey. Like the cultivated species, the seed-like fruits have long feathery styles which form silvery clusters.

ALPINE BUTTERCUP *RANUNCULUS MACAULEYI*

Plate 3, fig. 6

The Alpine Buttercup has bright yellow, cup-like flowers that fit our ideas of a buttercup much better than do those of the Trailing Buttercup described below. It is more rarely found, since it grows only on alpine peaks at 10000-14000 ft. It prefers wet places among the rocks and near snow-banks and blooms in midsummer. Many species of buttercup possess a more or less acrid juice. For this reason, they are little eaten by cattle and hence the notion that the deep color of butter in early spring is due to the buttercup is, of course, without foundation.

TRAILING BUTTERCUP *RANUNCULUS CYMBALARIA*

Plate 3, fig. 3

The flowers of this little trailing plant are lemon-yellow, and rather inconspicuous, blooming from June throughout the summer. The

Plate 3

BUTTERCUP FAMILY

- 1 Anemone, Wind Flower: *Anemone multifida*
- 2 Alpine Clematis: *Clematis alpina*
- 3 Trailing Buttercup: *Ranunculus cymbalaria*
- 5 Pasque Flower: *Pulsatilla hirsutissima*
- 6 Alpine Buttercup: *Ranunculus Macauleyi*

WATER LILY FAMILY

- 4 Yellow Water Lily: *Nymphaea polysepala*



plants are only a few inches tall and grow in wet or alkaline soil at 3000-10000 ft.

PASQUE FLOWER *PULSATILLA HIRSUTISSIMA*

Plate 3, fig. 5

The Pasque Flower is one of the earliest spring blossoms, as is indicated by the name which is from the French for Easter. The word "Pulsatilla" means wind flower and indicates its relationship to the anemones. The color of the flower ranges from whitish through pale blue or pink to purple. By the end of spring, the flowers have all developed into beautiful feathery clusters of fruits, very like those of the Clematis. The plants are 6-15 in. high and densely covered with fuzzy white hairs. They occur abundantly on plains and foothills and in mountain meadows at 4000-10000 ft. The Pasque Flower is the state flower of South Dakota and is sometimes cultivated in gardens.

WATER LILY FAMILY

YELLOW WATER LILY *NYMPHAEA POLYSEPALA*

Plate 3, fig. 4

Water lilies are not lilies at all but are very like buttercups in the structure of the flower. The famous Lotus Flower of the Nile is a water lily. The flowers of the Rocky Mountain species are yellow, tinged with red. They may be found from May to August, floating on the surface of lakes and slow streams up to 11000 ft. The seeds from the large mucilaginous pods are used as food by the Indians of the Northwest. They are dried and roasted, after which they taste very much like popcorn, or they may be ground into meal and made into porridge or bread. *Nymphaea* means "water nymph" and refers to the home of the plant.

Plate 5

VIOLET FAMILY

- 1 Yellow Violet: *Viola biflora*
- 2 Prairie Violet: *Viola pedatifida*

CAPER FAMILY

- 3 Rocky Mountain Bee Plant: *Cleome serrulata*

MUSTARD FAMILY

- 4 Wall Flower: *Erysimum asperum*
- 5. Golden Whitlow: *Draba aurea*
- 7 Bladder pod: *Physaria didymocarpa*

BLEEDING HEART FAMILY

- 6 Golden Smoke: *Capnoides aureum*



VIOLET FAMILY

YELLOW VIOLET *VIOLA BIFLORA*

Plate 5, fig. 1

The plants of the Yellow Violet are low and the deep-green leaves often form carpet-like masses along the moist edges of brook-banks at 7000-11000 ft. The flowers are small and yellow with red-brown stripes, the lower petal hanging down in the form of a lip. They bloom from spring to early summer.

PRAIRIE VIOLET *VIOLA PEDATIFIDA*

Plate 5, fig. 2

The flowers of the Prairie Violet are large and deep blue, though albino forms are sometimes found. The plants are stemless and only a few inches high, blooming on prairies at 3000-6000 ft. from April to June. The Prairie Violet may easily be mistaken for the Bird's-foot Violet of the East on account of its deeply cut leaves, which serve also to distinguish it from the Blue Violet so common in woodlands.

CAPER FAMILY

ROCKY MOUNTAIN BEE PLANT *CLEOME SERRULATA*

Plate 5, fig. 3

This plant is a conspicuous feature of disturbed or waste places on the plains and in the foothills at 3000-7000 ft. It usually forms dense clumps or thickets in which the plants may be 6-10 ft. high. The flowers occur in large rose-purple, pink or rarely white clusters which are found throughout the summer. They contain much nectar and consequently are great favorites among the bees. This plant is a relative of the capers which are cultivated for their pungent flower-buds used in salads.

MUSTARD ORDER

MUSTARD FAMILY

WALL FLOWER *ERYSIMUM ASPERUM*

Plate 5, fig. 4

The Wall Flower has a wide range of coloring, varying from pure yellow to burnt-orange and even rose-purple. It is 1-2 ft. high and occurs on prairies, plains and mountain-sides at 3000-12000 ft. The flowers are fragrant and occur in dense clusters which are found from spring to midsummer. The Wall Flower is a close relative of the Stocks of old-fashioned gardens.

GOLDEN WHITLOW *DRABA AUREA*

Plate 5, fig. 5

This little plant bears small golden-yellow blossoms in spring and summer. It is found in sunny spots and in open woodland and forest throughout the mountains from 7000-13000 ft.

BLADDER POD *PHYSARIA DIDYMOCARPA*

Plate 5, fig. 7

The flowers of the Bladder Pod are pale yellow and the stems prostrate, growing on dry hills and gravel-slides at 5000-10000 ft. and blooming in spring and early summer. The Bladder Pod receives its name from its inflated fruits which roll around on the gravel-slide.

BLEEDING HEART FAMILY

GOLDEN SMOKE *CAPNOIDES AUREUM*

Plate 5, fig 6

This plant belongs to the same family as the familiar Bleeding Heart and Dutchman's Breeches, but the flower is yellow in color and has only one spur. It is especially fond of open, sandy or gravelly soils

and is found widely distributed in woodlands and on hillsides at 4000-10000 ft. The plants begin flowering in June and continue throughout the summer. They vary greatly in size from tiny individuals an inch or two high, to great masses, 2 ft. or more across. Some of the species possess an odor like smoke, to which both the scientific and the common names refer.

FLAX FAMILY

BLUE FLAX *LINUM PERENNE*

Plate 7, fig. 1

The delicate blue flowers of the Flax open soon after sunrise, and the petals drop late in the morning, so that the plant is hardly noticeable for the rest of the day. The plants are found on the plains and in the foothills at 5000-10000 ft. and bloom all summer. The Blue Flax is grown in gardens for ornamental purposes and is cultivated by the Indians for the sake of its remarkably strong fibres. The Klamath Indians make these into string and cords which are then used in baskets and mats, fish nets, the meshes of snow-shoes, etc. General cultivation of this native species has not proven profitable, however, since the common flax excels it both in fibre and in seeds, and is commercially one of our most useful plants.

OXALIS FAMILY

WOOD SORREL *OXALIS STRICTA*

Plate 7, fig. 2

Children call this Wood Sorrel with yellow blossoms "Snake Sorrel" and think it poisonous, though without reason. It blooms all

Plate 7

FLAX FAMILY

- 1 Blue Flax: *Linum perenne*

OXALIS FAMILY

- 2 Wood Sorrel: *Oxalis stricta*

MALLOW FAMILY

- 3 Rose Mallow: *Sidalcea neo-mexicana*
7 Red Mallow: *Malvastrum coccineum*
8 Poppy Mallow: *Callirhoe involucrata*

SPURGE FAMILY

- 4 Snow-on-the-Mountain: *Euphorbia marginata*

GERANIUM FAMILY

- 5 Storksbill, Alfilaria: *Erodium cicutarium*
6 Geranium, Cranesbill: *Geranium caespitosum*



summer in woods, fallow fields and along roadsides at 4000-8000 ft. The leaflets fold together and "sleep" at night, as the clovers do. Both the common and the botanical names refer to the sour juice of the stems and leaves, and it is this quality that causes the Violet Wood Sorrel to be used in salads and pies.

MALLOW FAMILY

ROSE MALLOW *SIDALCEA NEO-MEXICANA*

Plate 7, fig. 3

The Rose Mallow bears rose-colored or rose-purple flowers from early summer to midsummer. The plants are 1-2 ft. tall and usually grow scattered. They are found in foothills and mountain valleys at 6000-10000 ft.

RED MALLOW *MALVASTRUM COCCINEUM*

Plate 7, fig. 7

The Red Mallow is one of the most striking flowers of the plains and foothills. The vermilion blossoms grow in clusters which often give a vivid color to extensive areas. The plants occur at 3000-9000 ft. and bloom throughout the summer.

POPPY MALLOW *CALLIRHOE INVOLUCRATA*

Plate 7, fig. 8

The crimson blossoms of the Poppy Mallow are abundant on prairies and plains at 3000-6000 ft. They bloom in early summer and midsummer and usually make deep masses of color among the grasses. Their beauty amply warrants introduction into home gardens.

SPURGE FAMILY

SNOW-ON-THE-MOUNTAIN *EUPHORBIA MARGINATA*

Plate 7, fig. 4

The beauty of the Snow-on-the-Mountain is due to the white border of the leaves and bracts, and not at all to the flowers, which are reduced to tiny stamens and pistils. A field of these plants with their snowy foliage makes clear the reason for the common name. They may be found all summer in abundance in the clay soil of pastures and roadsides at 4000-7000 ft., but should be handled with care since the milky juice is poisonous. Where it touches the skin, it often causes itching and inflammation, accompanied with pimples and blisters very like those caused by poison ivy. This blistering action is so decided that the juice is said to be used to brand cattle in some parts of the West, as the scar heals more rapidly than one made by the branding iron. Honey made from the flowers is also poisonous, but since it is hot and disagreeable to the taste, it is not apt to be eaten.

Snow-on-the-Mountain has considerable value as an ornamental plant for the garden, and it furnishes some rubber, though not in sufficient quantity to be commercially important. Other species of *Euphorbia*, or spurge, were formerly used as cathartics and stimulants, but they are all too acrid for safe application, either externally or internally. The small species are sometimes used to cauterize warts, but other means are more certain in their effect and less likely to cause injury to the surrounding skin.

GERANIUM FAMILY

STORKSBILL, *ALFILARIA* *ERODIUM CICUTARIUM*

Plate 7, fig. 5

The fruit of the Storksbill bears a fancied resemblance to the long beak of a crane or stork, and both the common and scientific names

refer to this resemblance. The flowers are rose-purple and look like those of a small geranium. The twisted fruits have been carried everywhere by sheep, and the plants are especially common in roadsides and pastures at 4000-7000 ft. The Storksbill has been somewhat used in medicine as a mild astringent and tonic, and under the name of "Filaree" it is greatly prized by stockmen as forage, especially for sheep.

GERANIUM, CRANESBILL GERANIUM CAESPITOSUM

Plate 7, fig. 6

The Geranium, like the *Alfilaria*, has a fruit resembling the long beak of the crane or stork. The flowers are bright pink, red or purple, while the plants closely resemble those of the White Geranium. The latter, however, grows usually along brook-banks and in wet meadows, while the Red Geranium occurs on dry foothills, gravel-slides and in pine woods at 5000-10000 ft. Both Geraniums bloom from late spring to midsummer.

FOUR O'CLOCK FAMILY

FRINGE CUP ALLIONIA LINEARIS

Plate 8, fig. 1

The purple flowers of the Fringe Cup open late in the afternoon and wither as they close in the heat of the sun the next morning. As with most red and blue flowers, albino forms are sometimes found. The plants are 2-5 ft. in height and may be found in bloom all summer on prairies, foothills and gravel-slides at 4000-9000 ft.

FOUR O'CLOCK MIRABILIS MULTIFLORA

Plate 8, fig. 2

This plant resembles the Four O'Clock of the garden, but the flowers are much larger. It also opens late in the afternoon and

Plate 8

FOUR O'CLOCK FAMILY

- 1 Fringe Cup: *Allionia linearis*
- 2 Four O'Clock: *Mirabilis multiflora*

GOOSEFOOT FAMILY

- 3 Strawberry Blite: *Chenopodium capitatum*

BUCKWHEAT FAMILY

- 4 Lady's Thumb, Heart's Ease: *Polygonum pennsilvanicum*
- 5 Golden Buckwheat: *Eriogonum Jamesii*
- 8 Crimson Wings: *Rumex venosus*

PINK FAMILY

- 6 Alpine Pink, Moss Champion: *Silene acaulis*
- 7 Cow Pink: *Saponaria vaccaria*



withers the next morning. The large rose-red blossoms grow on plants 1-2 ft. high and usually densely clustered. They are found on the plains and foothills at 4000-7000 ft.

GOOSEFOOT FAMILY

STRAWBERRY BLITE *CHENOPODIUM CAPITATUM*

Plate 8, fig. 3

The flowers of the Strawberry Blite are very tiny, but are clustered together into conspicuous spikes, usually a brilliant red in color, though they may vary from greenish to purple. The plants generally grow along brook-banks in fir and spruce forests at 6000-10000 ft. and bloom from late spring to midsummer.

BUCKWHEAT FAMILY

LADY'S THUMB, HEART'S EASE *POLYGONUM PENNSILVANICUM*

Plate 8, fig. 4

The flowers of this plant are small, but they are grouped to form brilliant rose-colored spikes an inch or two long. The plants are 2-5 ft. high and are found in wet ground and dried-up ponds and hence are often pests in grain fields during wet years. They are found at 3000-5000 ft. and bloom all summer. The Heart's Ease is valuable as a honey plant and its seeds occur as a common impurity in clover seed.

GOLDEN BUCKWHEAT *ERIOGONUM JAMESII*

Plate 8, fig. 5

The tiny whitish to yellow flowers of the Golden Buckwheat are clustered in round heads at the tips of stiff gray-green stems. The

PINK ORDER

latter have a bunch of leaves at the base and hence form dense mats in gravelly soil on plains and in the foothills at 4000-9000 ft. The flower clusters are conspicuous throughout the summer.

CRIMSON WINGS *RUMEX VENOSUS*

Plate 8, fig. 8

The name Crimson Wings is applied to this dock on account of the brilliant rose-colored calyx. The latter becomes enormously enlarged as the flower goes to seed and thus forms a device for the carriage of the seed by the wind. The low plants grow in sandy soil at 4000-8000 ft. and bloom in spring and early summer. This species has no value except possibly as an ornamental, but other species of the genus are cultivated for salad, and several of the wild species furnish excellent "greens."

PINK FAMILY

ALPINE PINK, MOSS CAMPION *SILENE ACAULIS*

Plate 8, fig. 6

The pink or purplish flowers of the Alpine Pink grow densely clustered in mats on exposed mountain tops, often near the snow. They are polar as well as alpine plants and are found in these regions throughout the Northern Hemisphere. In the mountains they occur at 9000-14000 ft. and bloom throughout the summer.

COW PINK *SAPONARIA VACCARIA*

Plate 8, fig. 7

The botanical name of the Cow Pink refers to the soap-like sap of some species, which sometimes leads to their use as a substitute for soap. The flowers are white, pink or pale red and bloom all summer. The plant is a troublesome weed in grain fields and grows in waste places at 5000-8000 ft. The seeds are poisonous.

PRIMROSE FAMILY

BIRD'S-EYE PRIMROSE PRIMULA FARINOSA

Plate 16, fig. 1

The lilac flowers of the Bird's-eye Primrose grow in clusters at the tips of unbranched stems. The plants are 4-8 in. high and bloom in the spring. They are found along brook-banks and in wet meadows at 7000-9000 ft. Both the botanical and common names of the Primrose refer to the almost universal habit of blooming in early spring.

YELLOW PRIMROSE STEIRONEMA CILIATUM

Plate 16, fig. 2

The blossoms of the Yellow Primrose grow in pairs in the axils of the leaves and bloom in summer. The plants are 2-5 ft. high and grow in grassy meadows and along streams at 3000-8000 ft.

PRIMROSE PRIMULA PARRYI

Plate 16, fig. 3

The red-purple blossoms of this Primrose grow in large, loose clusters on stems 6 in.-2 ft. tall. The plants are strong-scented and are found hidden away in alpine rock-clefts or along subalpine torrents at 9000-14000 ft. They bloom in early and midsummer and have a fragrance very like musk. The flowers are large and resemble those of the cultivated primroses.

SHOOTING STAR DODECATHEON MEADIA

Plate 16, fig. 4

The Shooting Stars vary in color from pale pink to deep bright reddish-purple, and occasionally white ones are found. They hang downward in loose clusters from the tips of leafless reddish stems, 6-20 in. tall, and bloom in early and midsummer. They occur along brook-banks and in wet meadows at 5000-12000 ft.

Plate 16

PRIMROSE FAMILY

- 1 Bird's-eye Primrose: *Primula farinosa*
- 2 Yellow Primrose: *Steironema ciliatum*
- 3 Primrose: *Primula Parryi*
- 4 Shooting Star: *Dodecatheon meadia*
- 5 Rock Jasmine: *Androsace chamaejasme*
- 6 Fairy Primrose: *Primula angustifolia*
- 8 Seawort: *Glaux maritima*
- 9 Douglas Primrose: *Douglasia montana*

WINTERGREEN FAMILY

- 7 Wintergreen: *Pirola uliginosa*

HEATH FAMILY

- 10 Bearberry, Kinnikinnic: *Arctostaphylus uva-ursi*



ROCK JASMINE ANDROSACE CHAMAEJASME

Plate 16, fig. 5

The tiny Rock Jasmine carpets alpine gravel-slides with its moss-like leaves or hides shyly away in alpine rock-clefts at 10000-14000 ft. The flowers are white and primrose-like, with pink or yellow centers, and they often turn pink as they wither. They grow in tiny clusters at the tips of dwarf stems 1-3 in. high. The flowers are fragrant and bloom from early to midsummer.

FAIRY PRIMROSE PRIMULA ANGUSTIFOLIA

Plate 16, fig. 6

The Fairy Primrose is another alpine dwarf, growing but a few inches high in meadows at 10000-14000 ft. The reddish-purple flower with yellow center is usually solitary at the tip of the stem and blossoms in early summer, which is of course spring at these altitudes.

SEAWORT GLAUX MARITIMA

Plate 16, fig. 8

The Seawort receives its name from the fact that it possesses fleshy leaves and prefers saline soil, though it is also found in dry regions at 3000-6000 ft. The tiny pink flowers occur in the axils of the leaves along the stems which are 2-12 in. tall. They bloom in summer and are found in northern countries around the globe.

DOUGLAS PRIMROSE DOUGLASIA MONTANA

Plate 16, fig. 9

The lilac blossoms of this slender little plant open in early and midsummer. The plants grow but 2-5 inches tall and are found in mountain meadows at 6000-11000 ft.

WINTERGREEN FAMILY

WINTERGREEN *PIROLA ULIGINOSA*

Plate 16, fig. 7

The delicate drooping pink blossom of the Wintergreen grow in open spikes on slender stems 5-7 in. tall and bloom in early and mid-summer. The leaves are evergreen and the plants are usually grouped in such a way as to form evergreen carpets on brook-banks, and in fir and spruce woods at 7000-11000 ft.

HEATH FAMILY

BEARBERRY, *KINNIKINNIC* *ARCTOSTAPHYLUS UVA-URSI*

Plate 16, fig. 10

The Bearberry is a trailing plant with evergreen leaves that forms dense mats in pine forests and on gravel-slides and denuded hills at 3000-10000 ft. The drooping clusters of tiny waxen blossoms with pink edges are hidden beneath the leaves in early summer. They later develop into crimson berries which contrast with the evergreen foliage and hence serve as decorations, resembling the well-known holly of the Christmas season.

GENTIAN FAMILY

ROSE GENTIAN *GENTIANA AMARELLA*

Plate 18, fig. 1

The Rose Gentian is interesting on account of its great variability in size and form. In dry spots and on alpine peaks, the plants are often only $\frac{1}{2}$ -1 in. tall with the flower even longer than the stem. In

moist situations and in shade they may be a foot or two high and much branched. The flowers are lilac with a fringe of hairs at the opening of the paler tube. They bloom throughout the summer and are found in meadows and in fir, spruce and aspen forests at 6000-12000 ft.

FRINGED GENTIAN *GENTIANA SERRATA*

Plate 18, fig. 2

The Fringed Gentian is named from the finely cut edges of the petals and is closely related to the Fringed Gentian of the East. The deep blue flowers have lighter streaks or patches downward and they bloom throughout the summer. The plants grow in wet meadows and along brook-banks at 8000-13000 ft.

GREEN GENTIAN *FRASERA SPECIOSA*

Plate 18, fig. 3

The flowers of the Green Gentian are pale greenish-white with dark bluish spots on the tips of the petals. They are crowded in huge clusters a foot or two long on plants 2-6 ft. tall. They bloom all summer and are visited by many kinds of insects in search of honey. The nectaries are protected by a fringe of hairs. The plants grow in spruce and aspen woods or in grassy clearings at 6000-10000 ft.

FRAGRANT GENTIAN *GENTIANA BARBELLATA*

Plate 18, fig. 4

This is also a fringed gentian with very fragrant flowers which bloom in late summer. The petals are pale blue and curiously long. The plants are rare but may be found in open parks and meadows at 9000-12000 ft.

Plate 18

GENTIAN FAMILY

- 1 Rose Gentian: *Gentiana amarella*
- 2 Fringed Gentian: *Gentiana serrata*
- 3 Green Gentian: *Frasera speciosa*
- 4 Fragrant Gentian: *Gentiana barbellata*
- 5 Prairie Gentian: *Eustoma russellianum*
- 6 Blue Gentian: *Gentiana calycosa*
- 7 Star Gentian: *Swertia perennis*



PRAIRIE GENTIAN *EUSTOMA RUSSELLIANUM*

Plate 18, fig. 5

The Prairie Gentian is one of the largest flowered gentians. Wet meadows at 4000-5500 ft. are brilliant in midsummer with the deep reddish-purple flowers. The plants rarely grow taller than 15 in.

BLUE GENTIAN *GENTIANA CALYCOSA*

Plate 18, fig. 6

The deep blue flowers of this Gentian grow in clusters on plants 5-20 in. tall. They bloom in midsummer and autumn and are found in aspen woods and meadows at 8000-12000 ft. Practically all species of Gentians yield a substance which is one of the best simple bitters and is used in medicine.

STAR GENTIAN *SWERTIA PERENNIS*

Plate 18, fig. 7

The starry blue-purple or white flowers of the Star Gentian are clustered on stems 3-20 in. tall. They grow along brook-banks and in wet meadows and bogs at 8000-13000 ft. and bloom during midsummer.

POTATO FAMILY

PURPLE GROUND CHERRY *QUINCULA LOBATA*

Plate 19, fig. 1

This Ground Cherry has beautiful purple flowers, each with a white-rayed, woolly star in the center of the corolla. The plants are low and spreading, and 2-8 in. high. They are found in waste places and along roadsides at 4000-6000 ft., blooming in early and midsummer. The common Ground Cherries usually have yellow flowers and the berries are edible, often being made into jams and pies.

Plate 19

POTATO FAMILY

- 1 Purple Ground Cherry: *Quincula lobata*
- 4 Buffalo Bur: *Solanum rostratum*

MORNING GLORY FAMILY

- 2 Bush Morning Glory: *Ipomoea leptophylla*

PHLOX FAMILY

- 3 Trumpet Phlox: *Gilia aggregata*
- 5 Nectar Cup: *Polemonium speciosum*
- 6 Jacob's Ladder: *Polemonium pulchellum*
- 7 Tiny Trumpet: *Collomia linearis*



BUFFALO BUR *SOLANUM ROSTRATUM*

Plate 19, fig. 4

The yellow flowers of the Buffalo Bur are similar to those of its near relative, the potato. They grow on bushy plants, 1-3 ft. high and are found along roadsides, in fallow fields and pastures at 4000-6000 ft. They bloom throughout the summer and the prickly pods are found along with the flowers. The common name refers to the prickles on pod and stem, and the specific one to the curious beak of the flower. The Buffalo Bur is an annual and hence it can be easily gotten rid of by cutting or burning.

MORNING GLORY FAMILY

BUSH MORNING GLORY *IPOMOEA LEPTOPHYLLA*

Plate 19, fig. 2

The bushy form of this plant makes it a very strange Morning Glory in looks, but the flowers are characteristic, opening in the morning and closing and withering later in the day. The large pink or red blossoms cover the bushes with a riot of color during the summer. The bushes grow to a height of 2-5 ft. and possess huge roots, some of them attaining the size of a man. They are found on plains and foothills and in sandhills at 3000-6000 ft. The Bush Morning Glory is highly ornamental and should be in cultivation.

PHLOX FAMILY

TRUMPET PHLOX *GILIA AGGREGATA*

Plate 19, fig. 3

The flowers of the Trumpet Phlox show a wide range of color. In the mountains they are usually pink, while on the plains pure white

and deep red are the commonest colors. The blossoms are clustered along the slender stems which are 2-4 ft. tall. The plants are widely distributed on plains, foothills and open places in the mountains at 6000-10000 ft. and they bloom throughout the summer. The humming-bird is a regular visitor of this flower for the sake of its nectar. In fact, the latter can be secured only by humming-birds and butterflies because of the length of the tube. In Indian legend, the nectar of the Trumpet *Phylox* was the drink of the wild dove.

NECTAR CUP *POLEMONIUM SPECIOSUM*

Plate 19, fig. 5

The fragrant pale blue flowers of the Nectar Cup are hidden away on the highest peaks of Colorado at 12000-14000 ft. They grow in dense heads at the tips of stems about a foot tall and bloom in mid-summer. The name refers to the abundant honey at the base of the corolla tube.

JACOB'S LADDER *POLEMONIUM PULCHELLUM*

Plate 19, fig. 6

Jacob's Ladder doubtless receives its name from the ladder-like leaves. The flowers are delicately blue with white tubes and are clustered on graceful stems a foot tall or less. They may be found in spruce forests on the mountains at 8000-14000 ft. and bloom in summer, often so abundantly as to form a blue carpet on the forest floor.

TINY TRUMPET *COLLOMIA LINEARIS*

Plate 19, fig. 7

The tiny white to reddish flowers of this plant may easily be overlooked on account of their size. They are grouped on stems which vary from a few inches to about 3 ft. in height, and grow in dry and sandy soil at 4000-9000 ft. They come into bloom in the spring and blossom throughout the summer.

BORAGE FAMILY

CHIMING BELLS *MERTENSIA SIBIRICA*

Plate 21, fig. 1

The very graceful drooping clusters of Chiming Bells vary through delicate shades of blue and pink. The plants grow 2-5 ft. tall and are found blooming all summer long in fir and spruce forests and along shady streams at 6000-13000 ft.

GOLDEN BORAGE *KRYNITZKIA LEUCOPHAEA*

Plate 21, fig. 2

The yellow or yellowish flowers of the Golden Borage are clustered at the ends of stems 4-10 in. high. They bloom in spring and early summer and are found on hills at 3000-7000 ft.

PUCCOON *LITHOSPERMUM MULTIFLORUM*

Plate 21, fig. 3

The bright yellow flowers of the Puccoon hang in dense clusters from tips of stems 1-3 ft. high. They occur on hills and mountains and in canyons at 6000-10000 ft. and bloom in spring and early summer. The botanical name means "stone seed" and refers to the mature seeds which are hard, white and shining. The French call this plant the "Plante aux Perles" since the ripe seeds resemble pearls.

FORGET-ME-NOT *MYOSOTIS ALPESTRIS*

Plate 21, fig. 4

This rare little flower is the true Forget-me-not and is widely cultivated in gardens. The blossoms are blue, pink or white and grow in clusters on stems 4-10 in. high, in mountain meadows at 9000-12000 ft. They are very fragrant and bloom from spring throughout the summer.

Plate 21

BORAGE FAMILY

- 1 Chiming bells: *Mertensia sibirica*
- 2 Golden Borage: *Krynitzkia leucophaea*
- 3 Puccoon: *Lithospermum multiflorum*
- 4 Forget-me-not: *Myosotis alpestris*
- 5 Alpine Forget-me-not: *Mertensia alpina*
- 7 Comfrey: *Symphytum officinale*
- 8 Dwarf Forget-me-not: *Eritrichium argenteum*
- 9 Stickseed: *Lappula floribunda*

WATERLEAF FAMILY

- 6 Purple Fringe: *Phacelia sericea*



ALPINE FORGET-ME-NOT MERTENSIA ALPINA

Plate 21, fig. 5

The Alpine Forget-me-not is not a true Forget-me-not, but is universally called such in the Rocky Mountains, where it is very abundant on the highest peaks of Colorado at 10000-14000 ft. The flowers are blue or pink and are very fragrant. They grow in dense clusters on stems 2-16 in. high and bloom in early summer. This flower would well repay cultivation at lower altitudes.

COMFREY SYMPHYTUM OFFICINALE

Plate 21, fig. 7

The yellowish or purplish flowers of the Comfrey occur on stems 2-3 ft. tall along roadsides in Colorado at 5000 ft. They come into bloom in early summer and continue throughout the summer. The plant is medicinal, yielding an astringent as well as an emollient. The leaves when young form a good green vegetable and are not infrequently eaten by country people where the plant abounds. They are also sometimes used to flavor cakes and other articles of food, but when fully grown they become coarse and unpleasant to the taste.

DWARF FORGET-ME-NOT ERITRICHIMUM ARGENTEUM

Plate 21, fig. 8

The Dwarf Forget-me-not receives its name from its resemblance to the true Forget-me-not, *Myosotis*. The flowers are white, pale blue or deep blue with some yellow in the throat and are clustered on tiny stems, 1-3 in. high. They grow only on alpine peaks at 11000-14400 ft. and bloom all summer long. The flowers are fragrant and the foliage silvery-green because of the presence of many white hairs.

STICKSEED LAPPULA FLORIBUNDA

Plate 21, fig. 9

The Stickseed receives its name from the bur-like fruits covered with tiny hooks which cling tenaciously to objects that touch them.

PHLOX ORDER—SNAPDRAGON ORDER

These fruits are somewhat injurious to animals that eat the plants. The tiny flowers are blue or white and are clustered on graceful stems 2-4 ft. high. They bloom all summer on hillsides and among bushes at 5000-10000 ft.

WATERLEAF FAMILY

PURPLE FRINGE PHACELIA SERICEA

Plate 21, fig. 6

The flowers of the Purple Fringe are blue-violet to deep red-purple, rarely white. They are densely clustered on low stems 6-15 in. high. They bloom in midsummer and possess a strong, disagreeable odor. The plants live in alpine meadows and rock-fields on high peaks at 10000-13000 ft.

SNAPDRAGON FAMILY

SPEEDWELL VERONICA AMERICANA

Plate 22, fig. 1

The Speedwell is a water-plant and its blue or white, purple-striped flowers may be found in wet meadows and about ponds at 4000-12000 ft. The stems grow 4 in.-2 ft. tall and the flowers bloom throughout the summer.

GOLD TONGUE ORTHOCARPUS LUTEUS

Plate 22, fig. 2

The common name is suggested by the appearance of the yellow flowers. These occur in stiff spikes on stems 4-16 in. tall and bloom all summer. They may be found on plains and in foothills and meadows at 4000-10000 ft.

EYEBRIGHT *VERONICA BUXBAUMII*

Plate 22, fig. 3

The Eyebright is a very close relative of the Speedwell. Some twenty of the species of *Veronica* have been used as drugs. The flowers are blue with darker stripes and bloom from early spring through the summer and fall. The stems are 6-16 in. tall and are found in waste places at 5000-8000 ft.

MONKEY FLOWER *MIMULUS LANGSDORFII*

Plate 22, fig. 4

The yellow Monkey flowers grow on stems 6 in.-2 ft. high and are found in swamps and along streams, especially in muddy places, at 8000-12000 ft. They bloom in spring and summer. The Greek name of the genus means "comic actor" and refers to the grinning corolla, which also gives point to the common name.

INDIAN PAINTBRUSH, PAINTER'S BRUSH *CASTILLEIA MINIATA*

Plate 22, fig. 7

The brilliant red color of the Indian Paintbrush is furnished mainly by the upper leaves. The corollas are enfolded in the brightly colored bracts, which, clustered together at the end of the stem, give the effect of a gorgeous blossom. The plants are partial parasites and obtain their food ready-made from their neighbors. They grow 1-3 ft. tall and occur in foothills, mountains and forests at 6000-11000 ft. The flowers bloom all summer.

BLUE-EYED MARY *COLLINSIA PARVIFLORA*

Plate 22, fig. 8

The blue or blue and white flowers of this plant grow on spreading stems 2-6 in. high. They occur on shaded hillsides at 5000-9000 ft. and bloom in spring and early summer.

Plate 22

SNAPDRAGON FAMILY

- 1 Speedwell: *Veronica americana*
- 2 Gold Tongue: *Orthocarpus luteus*
- 3 Eyebright: *Veronica Buxbaumii*
- 4 Monkey Flower: *Mimulus Langsdorfii*
- 7 Indian Paintbrush, Painter's Brush: *Castilleja miniata*
- 8 Blue-eyed-Mary: *Collinsia parviflora*
- 9 Lousewort, Turtle Head: *Pedicularis canadensis*
- 10 Butter-and-eggs: *Linaria vulgaris*
- 11 Little Elephant: *Elephantella groenlandica*

BLADDERWORT FAMILY

- 5 Bladderwort: *Utricularia vulgaris*

BROOM-RAPE FAMILY

- 6 Broom-rape: *Thalesia uniflora*



LOUSEWORT, TURTLE HEAD *PEDICULARIS CANADENSIS*

Plate 22, fig. 9

The flowers of this Lousewort are yellowish and occur in crowded heads on low spreading stems, 4-6 in. high. They occur in mountain meadows at 6000-9000 ft. and bloom in spring and early summer. The name Lousewort is derived from the Latin one which was bestowed upon it, because once upon a time farmers believed that when their flocks fed upon the flowers the sheep were liable to be attacked by certain tiny lice or "pediculi." The name Turtle Head is from a fancied resemblance of the flower to the protruded head of a turtle. The plants are supposed to be poisonous to sheep.

BUTTER-AND-EGGS *LINARIA VULGARIS*

Plate 22, fig. 10

The flowers of Butter-and-Eggs are yellow and orange, and the common name refers to these two shades of yellow. They bloom throughout the summer and fall and are common in waste places and fields at 3000-7000 ft. The plants are persistent deep-rooted perennial weeds, 8-20 in. tall, and may be eradicated whenever desired by short rotation of crops and thorough cultivation in spring and fall. They are regarded with suspicion as being poisonous and the juice mingled with milk constitutes a fly poison. At one time, however, the plants yielded what was considered a valuable skin lotion.

LITTLE ELEPHANT *ELEPHANTELLA GROENLANDICA*

Plate 22, fig. 11

The flowers of the Little Elephant are pinkish-purple, and the elongated curved tube of the upper petal has a comical resemblance to an elephant's trunk. The stems grow 4-24 in. tall and are found in swamps and wet meadows at 8000-12000 ft. The flowers are arranged in open spikes and bloom all summer long.

SNAPDRAGON ORDER

BLADDERWORT FAMILY

BLADDERWORT *UTRICULARIA VULGARIS*

Plate 22, fig. 5

The yellow flowers of the Bladderwort grow on erect branches from submerged stems 1-4 ft. long, and are found in lakes, ponds, etc. at 3000-12000 ft. The Bladderwort receives its name from the tiny black bladders which grow on the submerged, finely divided leaves. These little bladders serve as traps and absorptive organs for tiny animals in the water, and the plants thus live partly on insects, larvæ, etc.

BROOM-RAPE FAMILY

BROOM-RAPE *THALESIA UNIFLORA*

Plate 22, fig. 6

The Broom-rape is a parasite and absorbs its food from the roots of its neighbors. This habit accounts for the pale color of both plants and blossoms, since all such robber-plants lose their green food-making matter through disuse. The flowers are violet-tinged and bloom in early summer. The plants may be found in damp woods at 5000-10000 ft.

SNAPDRAGON FAMILY

PINK BEARD-TONGUE *PENTSTEMON SECUNDIFLORUS*

Plate 23, fig. 1

The Pentstemons or Beard-tongues receive both the scientific name of the genus and the common name from the sterile fifth stamen, which is characteristically very hairy in the Beard-tongues. They are closely

related to the Foxglove of the garden, though few of the American species are as yet cultivated. The flowers of the Pink Beard-tongue are rose-purple or pink and grow on stiff stems 1-2 ft. high. They may be found on dry plains, foothills, hills and mountains at 5000-9000 ft. blooming in early summer.

DARK PENTSTEMON PENTSTEMON GLAUCUS-

Plate 23, fig. 2

The Dark Pentstemon usually bears wine-colored to nearly black flowers, though sometimes pale yellowish or whitish ones occur. They are ornamented with darker longitudinal stripes and bloom in midsummer in the mountains at 8000-12000 ft. At the higher altitudes the stems are dwarfed and attain no more than 4 in. in height, while ordinarily they grow to 3 ft.

BLUE PENTSTEMON PENTSTEMON GRACILIS

Plate 23, fig. 3

This dainty little Pentstemon carpets the ground with its blue flowers, with here and there a bunch of delicate pink ones, in early and middle summer. The stems grow 6 in.-2 ft. tall on plains and in the mountains at 4000-10000 ft.

SCARLET BUGLER PENTSTEMON BARBATUS

Plate 23, fig. 4

The bright red flowers of the Scarlet Bugler are conspicuous on hillsides and mountains at 5000-9000 ft. The stems are usually quite tall, 2-6 ft., and the flowers bloom in early summer. This Pentstemon as well as many others would be a welcome addition to the garden.

CLUSTERED PENTSTEMON PENTSTEMON CONFERTUS

Plate 23, fig. 5

The small yellowish to blue-purple and rose-purple flowers of the Clustered Pentstemon grow, as the name indicates, in crowded groups

Plate 23

SNAPDRAGON FAMILY

- 1 Pink Beard-tongue: *Pentstemon secundiflorus*
- 2 Dark Pentstemon: *Pentstemon glaucus*
- 3 Blue Pentstemon: *Pentstemon gracilis*
- 4 Scarlet Bugler: *Pentstemon barbatus*
- 5 Clustered Pentstemon: *Pentstemon confertus*
- 6 Blue Beard-tongue: *Pentstemon unilateralis*



and bloom in early summer. The plants are rather small, being usually but 4-15 in. high. They occur on hills and mountains at 7000-10000 ft.

BLUE BEARD-TONGUE *PENTSTEMON UNILATERALIS*

Plate 23, fig. 6

The blue-purple flowers of the Blue Beard-tongue are large and grow in conspicuous one-sided spikes on stems 2-5 ft. tall. They bloom in midsummer and are found in the mountains at 5500-8000 ft.

MINT FAMILY

SKULL CAP *SCUTELLARIA RESINOSA*

Plate 24, fig. 1

The blue flowers of the Skull Cap grow in pairs on leafy stems 4-15 in. high. They bloom in early summer and in fruit the reddish-brown calyx resembles a jockey's cap rather more than a skull cap. The plants occur on plains, foothills and gravel slides at 5000-10000 ft.

HEAL-ALL *PRUNELLA VULGARIS*

Plate 24, fig. 2

The flowers of the Heal-all are purple or white and bloom from early spring throughout the summer and fall. The stems are decumbent-ascending, 4-12 in. high, and are widely distributed in woods, along roadsides and in wet places at 4000-9000 ft. The Heal-all has a bitter and astringent taste and is somewhat used in medicine.

BROOK MINT *MENTHA CANADENSIS*

Plate 24, fig. 3

The tiny pink or lavender flowers of the Brook Mint are clustered in the axils of the paired leaves, and bloom throughout the summer.

Plate 24

MINT FAMILY

- 1 Skull Cap: *Scutellaria resinosa*
- 2 Heal-all: *Prunella vulgaris*
- 3 Brook Mint: *Mentha canadensis*
- 4 Horse Mint: *Monarda fistulosa*
- 5 Blue Sage: *Salvia Pitcheri*
- 6 Marsh Mint: *Stachys palustris*
- 8 Pennyroyal: *Hedeoma Drummondii*

VERBENA FAMILY

- 7 Verbena, Vervain: *Verbena bracteosa*



The plants grow 4-12 in. tall and are widely distributed as a common weed in low ground and wet places, at 4000-8000 ft. Where troublesome as a weed, the Brook Mint can be readily exterminated by thorough cultivation and dragging the soil. It is used to some extent in medicine, and the Klamath Indians make a tea from the leaves. Other mints, such as Peppermint, Spearmint, etc., are among the most highly valued aromatics.

HORSE MINT *MONARDA FISTULOSA*

Plate 24, fig. 4

The pink to rose-purple flowers of the Horse Mint form roundish heads at the tips of stiff stems 3-4 ft. tall. The plants grow in dense clusters in grassy meadows, thickets and on mountain-sides at 3000-9000 ft. The flowers bloom in midsummer and are worth cultivating in the garden. The common name refers to the tall or coarse stems.

BLUE SAGE *SALVIA PITCHERI*

Plate 24, fig. 5

The slender stems of the Blue Sage grow 2-6 ft. tall and bear blue or bluish blossoms in terminal spikes. They bloom from midsummer to fall on prairies at 3000-7000 ft. The Red Sage of gardens is a near relative of the Blue Sage, which well deserves cultivation also. Some of the sages are used for making a tea or tonic.

MARSH MINT *STACHYS PALUSTRIS*

Plate 24, fig. 6

The purplish or reddish blossoms of the Marsh Mint are clustered in the axils of leaves on stems 1-3 ft. high. They bloom in midsummer and are found on moist banks across the continent at 4000-8500 ft. The Marsh Mint is sometimes called "Woundwort" on account of its formerly great reputation for healing wounds. Its surgical value may be doubted, though it certainly is somewhat astringent. It is useful, however, because of its edible roots. These are tuberous and

MINT ORDER—ROSE ORDER

when boiled form a wholesome and nutritious food of rather agreeable flavor. The young shoots of the plant may likewise be eaten, being cooked like asparagus, but though pleasant to the taste they have a strong and disagreeable smell.

PENNYROYAL HEDEOMA DRUMMONDII

Plate 24, fig. 8

The tiny blue, pink or purple flowers of the Pennyroyal occur in open spikes on stems 4-8 in. high. They bloom in early and midsummer on dry plains and hills at 5000-7000 ft. The name Pennyroyal has no significance, as it is a corruption of an older name.

VERBENA FAMILY

VERBENA, VERVAIN VERBENA BRACTEOSA

Plate 24, fig. 7

The tiny blue to purple flowers of the Verbena are grouped in dense heads on decumbent stems. They bloom all summer on prairies, plains and in waste places at 4000-7500 ft. The garden Verbena is a near relative of the wild Verbena and originally came from Brazil.

ROSE FAMILY

WILD ROSE ROSA ACICULARIS

Plate 25, fig. 1

The pale to deep pink flowers of the Wild Rose come into bloom in early summer. They grow on shrubs 1-3 ft. high which are found on hills, mountain-sides and in open woods at 5000-10000 ft. The scarlet and crimson fruits of the Wild Rose make the bushes ornamental even after the flowers have passed blooming.

GOLD CUP, *POTENTILLA* *POTENTILLA GRACILIS*

Plate 25, fig. 2

The *Potentillas* may easily be mistaken for buttercups, though they actually belong to the Rose Family. The scientific name of the genus comes from a Latin word meaning powerful, and refers to the former use of the plants in medicine. This species, called Gold Cup on account of the shape and color of the blossoms, is bright yellow with an orange spot at the base of each petal. The flowers grow on graceful stems 6 in.-3 ft. high and bloom in midsummer. The plants grow in meadows and open woodlands at 5000-10000 ft.

GOLDEN AVENS *SIEVERSIA TURBINATA*

Plate 25, fig. 3

The Golden Avens also looks like a buttercup with its cup-like, yellow flowers that bloom in midsummer. The plants grow 4-20 in. high and are found on the higher peaks at 10000-14000 ft.

PINK PLUMES *SIEVERSIA CILIATA*

Plate 25, fig. 4

The brilliant rose to purple coloring of this flower is found in the sepals, the petals being rather inconspicuous and cream-colored with rose veins. The nodding blossoms of Pink Plumes occur on graceful rose-colored stems 4-18 in. tall and bloom in early summer. They are found on hills at 8000-12000 ft. The fruits form feathery clusters after the petals have fallen.

CREAMY CINQUEFOIL *DRYMOCALLIS ARGUTA*

Plate 25, fig. 6

The flowers of the Creamy Cinquefoil vary from pale cream to a pure yellow. They grow on erect stems 6 in.-4 ft. tall and blossom in early summer. They are widely distributed on prairies, plains, meadows and hillsides at 3000-12000 ft.

Plate 25

ROSE FAMILY

- 1 Wild Rose: *Rosa acicularis*
- 2 Gold Cup, *Potentilla*: *Potentilla gracilis*
- 3 Golden Awns: *Sieversia turbinata*
- 4 Pink Plumes: *Sieversia ciliata*
- 5 Shrubby Cinquefoil: *Dasyphora fruticosa*
- 6 Creamy Cinquefoil: *Drymocallis arguta*



SHRUBBERY CINQUEFOIL *DASYPHORA FRUTICOSA*

Plate 25, fig. 5

The Cinquefoils receive this name from the French and it refers to the five-parted leaves. The Shrubby Cinquefoil has yellow blossoms on erect shrubby stems that form good-sized bushes, or may be only a few inches tall at high elevations. They occur in meadows, along brooks and on gravel-slides at 6000-12000 ft., and bear flowers all summer.

PEA FAMILY

GOLDEN BANNER *THERMOPSIS MONTANA*

Plate 27, fig. 1

The bright yellow flowers of the Golden Banner occur in open spikes on plants 1-3 ft. high, and bloom in late spring. They may be found in meadows at 3000-11000 ft. The plants are supposed to poison stock, and several cases of the poisoning of children who have eaten the seeds are also reported.

SILVERY LUPINE *LUPINUS ARGENTEUS*

Plate 27, fig. 2

The Silvery Lupine, so named on account of the foilage, has blue to purple flowers arranged in open spikes which bloom in early summer. The plants are somewhat spreading and bush-like and grow 1-3 ft. high on prairies and in meadows at 5000-9000 ft.

PRAIRIE CLOVER *PETALOSTEMON PURPUREUS*

Plate 27, fig. 3

The Prairie Clover bears tiny rose-pink to purple blossoms in small but crowded heads. An albino form is occasionally found. The stems grow 6 in.-3 ft. tall on plains and prairies at 4000-7000 ft. and the flowers bloom all summer.

Plate 27

PEA FAMILY

- 1 Golden Banner: *Thermopsis montana*
- 2 Silvery Lupine: *Lupinus argenteus*
- 3 Prairie Clover: *Petalostemon purpureus*
- 4 Wild Sweet Pea: *Lathyrus ornatus*
- 5 Purple Vetch: *Vicia americana*



WILD SWEET PEA *LATHYRUS ORNATUS*

Plate 27, fig. 4

The flowers of the Wild Sweet Pea are purple and white and blossom in the spring and early summer. The stems are low, 4-12 in., and occur on plains and prairies at 4000-8000 ft.

PURPLE VETCH *VICIA AMERICANA*

Plate 27, fig. 5

The Purple Vetch bears blue to purple flowers in loose clusters on climbing or scrambling stems 1½-3½ ft. long. They bloom in spring and early summer and may be found on prairies and in rich river valleys at 4000-10000 ft.

LOCO *ARAGALUS LAMBERTI*

Plate 28, fig. 1

The flowers of the Loco are deep red-purple or white, often turning blue with age. They occur in open spikes on stems 4-12 in. tall and bloom in spring and summer. The plants occur on plains, prairies, hills and table-lands at 4000-9000 ft. The Loco is very poisonous to stock. After acquiring a taste for the plant they will eat nothing else and die from the effects in a few months or one or two years. In this way, millions of dollars of stock are lost annually. A cure for the disease has been found recently.

ALFALFA *MEDICAGO SATIVA*

Plate 28, fig. 2

The small blue to purple blossoms of Alfalfa grow in loose, small heads on branching plants that attain a height of 1-2 ft. They bloom all summer long. The plant has escaped from cultivation and grows thriftily at 5000-6000 ft. Alfalfa forms a most nourishing fodder for horses and cattle and has been cultivated for ages in Southern Europe. When sown in deep, rich soils, few plants yield so heavy a crop.

Plate 28

PEA FAMILY

- 1 Loco: *Aragalus Lamberti*
- 2 Alfalfa: *Medicago sativa*
- 3 Alpine Clover: *Trifolium dasyphyllum*
- 4 Psoralea: *Psoralea tenuiflora*
- 5 Dwarf Clover: *Trifolium nanum*
- 6 Prairie Pea: *Astragalus hypoglottis*
- 7 Rose Locust: *Robinia neo-mexicana*



During the World War, meal was made from the dried and ground plants and used as a substitute for flour.

ALPINE CLOVER *TRIFOLIUM DASYPHYLLUM*

Plate 28, fig. 3

The flowers of the Alpine Clover have a cream-white standard and rose-purple wings and keel. They are clustered in heads on stemless plants which form mats or cushions 4-20 in. across and grow only on alpine peaks at 12000-14000 ft. They bloom in midsummer. The name "Clover" comes from the Latin word meaning "club" and refers to the resemblance between the leaf and the 3-headed club of Hercules. The clubs of playing-cards are also no doubt an imitation of the clover-leaf. The 3-parted leaves of the clovers fold together and "sleep" at night. The cultivated clovers are valuable as fodder and the white-flowered species makes beautiful lawns.

PSORALEA *PSORALEA TENUIFLORA*

Plate 28, fig. 4

Psoralea bears its small blue to purplish flowers in open spikes on branching plants 1-4 ft. tall. They bloom in early summer and are found on dry plains and hills at 4000-8000 ft. Some species of this genus are used in medicine and one, *Psoralea esculenta*, has a tuberous root that is edible.

DWARF CLOVER *TRIFOLIUM NANUM*

Plate 28, fig. 5

The pink to rose-purple flowers of the Dwarf Clover occur usually in pairs on prostrate or spreading stems in the high mountains. They bloom in midsummer and are found only at 9000-14000 ft. The Latin name for the genus means "three-leaves," and the 3-parted leaf is characteristic of practically all clovers.

ROSE ORDER

PRAIRIE PEA *ASTRAGALUS HYPOGLOTTIS*

Plate 28, fig. 6

The flowers of the Prairie Pea are usually blue to purple, rarely whitish or yellowish. They occur in dense heads on procumbent or ascending stems 4-8 in. long and bloom in midsummer. The plants are found in meadows and river valleys at 4000-9000 ft.

ROSE LOCUST *ROBINIA NEO-MEXICANA*

Plate 28, fig. 7

The Rose Locust is a shrub or tree 3-15 ft. tall, which grows along streams at 4000-7000 ft. The flowers are white to rose-colored with a touch of yellow on the standard and keel, and their large showy clusters come into bloom in spring and early summer. It is the handsomest of the locusts, and should be cultivated wherever winters are not too severe.

STONECROP FAMILY

ROSE CROWN *CLEMENTSIA RHODANTHA*

Plate 30, fig. 1

The rose-pink to nearly white flowers of the Rose Crown are crowded into heads at the ends of stiff stems 4-20 in. tall. They bloom in midsummer and may be found in meadows and bogs and along streams at high altitudes, 10000-13000 ft.

KING'S CROWN, ROSEROOT *RHODIOLA ROSEA*

Plate 30, fig. 3

The tiny deep red-purple flowers of the King's Crown are crowded into dense roundish heads at the ends of unbranched stems 4-12 in. high. They bloom in midsummer and are found only on alpine peaks

at 9000-14000 ft. The plant is used in Greenland as a salad, and the leaves in poultices for headache. The root has a pleasant rose-like odor, which gives rise to the name Roseroot, sometimes used for this species.

STONECROP *SEDUM STENOPETALUM*

Plate 30, fig. 8

The yellow flowers of the Stonecrop occur in loose clusters at the ends of stems 1-8 in. high. The plants possess succulent leaves which store water and thus enable them to grow in dry, rocky or gravelly situations. They are found at 4000-12000 ft. and bloom all summer.

SAXIFRAGE FAMILY

FAIRY SAXIFRAGE *SAXIFRAGA CHRYSANTHA*

Plate 30, fig. 2

The dainty little Fairy Saxifrage grows but 1-3 in. high from a cluster of tiny leaves, and bears at the end of a slender stem a single yellow blossom. The lower half of the petal is dotted with many orange spots. The flowers bloom in midsummer. They are alpine dwellers only and are found among rocks at 11000-14000 ft. The name "saxifrage" is from the Latin meaning "rock-breaker" and refers to the habit some saxifrages have of living on rocks.

BROOK SAXIFRAGE *SAXIFRAGA PUNCTATA*

Plate 30, fig. 5

The Brook Saxifrage takes its name from its love of springy places and stream banks. The flowers are white and delicate and bloom in early summer. The plants are 1-3 ft. tall and occur at 8000-12000 ft.

DOTTED SAXIFRAGE *SAXIFRAGA BRONCHIALIS*

Plate 30, fig. 7

The Dotted Saxifrage has white or pale pink flowers with orange and purple dots on the petals. They bloom all summer. The plants

Plate 30

STONECROP FAMILY

- 1 Rose Crown: *Clementsia rhodantha*
- 3 King's Crown, Roseroot: *Rhodiola rosea*
- 8 Stonecrop: *Sedum stenopetalum*

SAXIFRAGE FAMILY

- 2 Fairy Saxifrage: *Saxifraga chrysantha*
- 4 Gooseberry: *Ribes lacustre*
- 5 Brook Saxifrage: *Saxifraga punctata*
- 6 Gooseberry: *Ribes leptanthum*
- 7 Dotted Saxifrage: *Saxifraga bronchialis*
- 9 Purple Saxifrage: *Saxifraga Jamesii*
- 10 Whiplash Saxifrage: *Saxifraga flagellaris*



are small and slender, 3-8 in. high and occur on rocks and gravel-slides at 6000-13000 ft.

PURPLE SAXIFRAGE *SAXIFRAGA JAMESII*

Plate 30, fig. 9

The pale to deep rose-purple flowers of the Purple Saxifrage grow in crowded spikes and form bright spots of color in rock-clefts and on rocks at 8000-13000 ft. The stems are 4-8 in. tall and the flowers bloom in early summer.

WHIPLASH SAXIFRAGE *SAXIFRAGA FLAGELLARIS*

Plate 30, fig. 10

This small plant with its yellow blossoms receives its name from the presence of little whip-like runners at the base. The plants are only 1-8 in. tall and occur on alpine peaks among the rocks at 10000-14000 ft. They bloom all summer.

GOOSEBERRY *RIBES LACUSTRE*

Plate 30, fig. 4

This pink-flowered Gooseberry blooms in spring and early summer. It is a shrubby plant about 1-3 ft. high and occurs in the mountains at 7000-12000 ft. The berry is red and covered with prickles.

GOOSEBERRY *RIBES LEPTANTHUM*

Plate 30, fig. 6

The yellow-flowered Gooseberry blooms in early summer. It is a shrub about 1-3 ft. in height and grows in the mountains at 6000-10000 ft. The berry is black when ripe, and edible. The wild gooseberries are related to the cultivated one and to the currant.

Plate 32

EVENING PRIMROSE FAMILY

- 1 Fireweed: *Chamaenerium angustifolium*
- 2 Scarlet Gaura: *Gaura coccinea*
- 3 Meriolix: *Meriolix serrulata*
- 4 Evening Primrose: *Onagra biennis*

MENTZELIA FAMILY

- 5 Evening Star: *Mentzelia multiflora*

CACTUS FAMILY

- 6 Prickly Pear: *Opuntia humifusa*
- 7 Purple Cactus: *Cactus viviparus*



EVENING PRIMROSE FAMILY

FIREWEED CHAMAENERIUM ANGUSTIFOLIUM

Plate 32, fig. 1

The Fireweed, as the name indicates, is found on burnt areas especially, though it also occurs in meadows and open woods and copses. The flowers are pale pink to deep rose-purple and bloom all summer long. The plants are widely distributed over the continent up to 10000 ft. and grow as tall as 5 ft. The name "Willow Herb" is sometimes given on account of the resemblance of the leaves to those of the willow. The Fireweed is cultivated as an ornamental plant in England, where the leaves are also used as an adulterant of tea. The foliage forms a wholesome vegetable when boiled, and the young shoots or suckers make a good substitute for asparagus. Beer and vinegar are made in Kamchatka by fermenting the shoots and pith. The down on the seeds resembles cotton, but possesses little tenacity, and the fibres are too brittle and short to be of any value except in the adulteration of other material.

SCARLET GAURA GAURA COCCINEA

Plate 32, fig. 2

The pinkish or red flowers of the Scarlet Gaura grow on slender plants 6 in.-2 ft. tall and bloom in spring and summer. They may be found on plains and prairies at 4000-5500 ft.

MERIOLIX MERIOLIX SERRULATA

Plate 32, fig. 3

Meriolix grows 6-15 in. tall and bears yellow flowers that bloom in spring and summer. They are found on plains and hills at 4000-8000 ft.

EVENING PRIMROSE ONAGRA BIENNIS

Plate 32, fig. 4

The fragrant yellow flowers of the Evening Primrose open in the evening and wither the next morning. They bloom all summer and

MENTZELIA ORDER—CACTUS ORDER

are visited frequently by the pink night moth in search of nectar. The plants grow 1-3 ft. high and are found in valleys and on plains at 4000-10000 ft. They were formerly cultivated in kitchen gardens in England for their edible roots. When boiled these are very nutritious and wholesome, but they have been eaten very little as a table vegetable since the use of the potato became general. They are sweet to the taste, somewhat resembling parsnips. A drug made from the Evening Primrose is used for coughs, colds and asthmatic troubles, and an ointment for skin affections is also obtained.

MENTZELIA FAMILY

EVENING STAR *MENTZELIA MULTIFLORA*

Plate 32, fig. 5

As the name indicates, the yellow flowers of the Evening Star open in the evening and close in the morning. They bloom all summer and are found on branching plants 8 in.-2 ft. high. These occur on dry plains and gravel-slides at 7000-9000 ft.

CACTUS FAMILY

PRICKLY PEAR *OPUNTIA HUMIFUSA*

Plate 32, fig. 6

The Prickly Pear bears yellow flowers on low branching spiny stems. As in all the members of the cactus family, the plants are leafless, the stems having been modified into food-making and water-storing organs that take the place of foliage. The flowers bloom in midsummer on prairies and plains at 4000-7000 ft. The fruit of the Prickly Pear is sometimes used as food, being collected and sold in the markets in some localities. The juice is used for coloring confectionery, and in Mexico a drink called "Colinche" is prepared from it. The old, fibrous parts of the joints are made into commercial articles when hard and firm. *Opuntia cochinellifera* is extensively cultivated in Mexico for the purpose of breeding the cochineal insect from which the finest crimson dye is produced.

PURPLE CACTUS *CACTUS VIVIPARUS*

Plate 32, fig. 7

The many-petalled, starry blossoms of the Purple Cactus grow in groups on ball-like fleshy stems which are but a few inches tall and covered with radiating brown and yellow spines. They dot the prairies and foothills at 3000-7000 ft. and bloom in midsummer.

PARSLEY FAMILY

MOUNTAIN PARSLEY *PSEUDOCYMOPTERUS MONTANUS*

Plate 36, fig. 7

The tiny yellow flowers of the Mountain Parsley are grouped, as in all the parsleys, in flat-topped clusters at the tip of the stem. They bloom in early and midsummer. In alpine meadows the flowers are burnt orange in color. The plants grow 1-2 ft. tall and may be found in forests, woodlands and meadows at 7000-12000 ft. The Mountain Parsley is related to the common parsley of kitchen gardens and also to Sweet Anise which is used to flavor confectionery.

HONEYSUCKLE FAMILY

TWIN FLOWER *LINNAEA BOREALIS*

Plate 36, fig. 4

As indicated by the name, the Twin Flowers grow in pairs. They are drooping, bell-shaped pink blossoms with a delicate fragrance and bloom in midsummer. The fragile stems are but 3-8 in. tall and are found in the moist shade of pine and spruce forests at 8000-12000 ft. The botanical name commemorates Linnaeus, the Father of Botany.

Plate 36

PARSLEY FAMILY

- 7 Mountain Parsley: *Pseudocymopterus montanus*

HONEYSUCKLE FAMILY

- 4 Twin Flower: *Linnaea borealis*
5 Snowberry: *Symphoricarpus occidentalis*

BLUEBELL FAMILY

- 1 Purple Bellflower: *Campanula Parryi*
2 Bluebell, Harebell: *Campanula rotundifolia*
6 Alpine Bluebell: *Campanula uniflora*

VALERIAN FAMILY

- 3 Valerian: *Valeriana silvatica*



SNOWBERRY SYMPHORICARPUS OCCIDENTALIS

Plate 36, fig. 5

The Snowberry bears its pale pink flowers in drooping clusters on the spreading branches of bushes, which grow 2-5 ft. tall. They bloom in midsummer and may be found in meadows and thickets at 3000-7000 ft. The name refers to the snow-white berries which form the fruits.

BLUEBELL FAMILY

PURPLE BELLFLOWER CAMPANULA PARRYI

Plate 36, fig. 1

The blossoms of the Purple Bellflower grow singly at the tips of slender stems and bloom in midsummer. They do not droop, as do many of the bluebells. They are found in mountain meadows at 7000-10000 ft. The plants are unbranched and small, growing but 4-12 in. tall. The name of the genus, *Campanula*, means "little bell."

BLUEBELL, HAREBELL CAMPANULA ROTUNDIFOLIA

Plate 36, fig. 2

The purple-blue flowers of the Bluebell droop gracefully at intervals along their slender stems and bloom all summer long. The plants grow but a few inches tall in the alpine regions where each bears but a single blossom, but they are sometimes 3 ft. high at lower altitudes, especially in the shade. They are found on foothills and in mountain meadows and aspen woodlands at 6000-13000 ft. This species is the true Bluebell of Scotland.

ALPINE BLUEBELL CAMPANULA UNIFLORA

Plate 36, fig. 6

The Alpine Bluebell is a tiny plant, growing but 2-5 in. tall on account of the effect of the high altitudes at which it lives. The

single blossom is a deep purple-blue and hangs from the tip of the fragile stem. The botanical name of the species means "one-flowered." The plants bloom in early summer and must be sought in alpine meadows at 11000-14000 ft.

VALERIAN FAMILY

VALERIAN *VALERIANA SILVATICA*

Plate 36, fig. 3

The tiny pale pink flowers of the Valerian grow in flat-topped clusters at the tips of straight stiff stems, 1-3 ft. tall. They bloom in early summer in fir and spruce forests at 8000-11000 ft. The botanical name of this species refers to the fact that the plants are forest-lovers. Some species of Valerian are used in medicine as a sedative and for various nervous troubles, and one has an edible root. They have a strong unpleasant odor which cats and rats like. The leaves are efficacious in healing wounds.

ASTER FAMILY

BLAZING STAR *LACINIARIA PUNCTATA*

Plate 37, fig. 1

The Blazing Star receives its name from the dense spikes of brilliant red-purple blossoms. These bloom in late summer and autumn and are found on prairies, plains and foothills at 3000-6000 ft. The plants are unbranched and grow 6-18 in. tall. This species is the least beautiful of several native blazing stars that deserve a place in the wild garden.

BLUE LETTUCE *LACTUCA PULCHELLA*

Plate 37, fig. 2

The pale blue-lavender flowers of the Blue Lettuce grow in clusters on plants 3-6 ft. high. They bloom in midsummer and are found along roadsides and in meadows at 3000-6000 ft. Several varieties of lettuce have narcotic properties, while the value of the garden lettuce is too well-known to need comment.

SHEATH FLOWER *COLEANTHUS GRANDIFLORUS*

Plate 37, fig. 3

The pale yellow blossoms of the Sheath Flower hang from their stalks like inverted thimbles and bloom in midsummer. The name refers to the tiny bracts that sheathe the flower-heads closely and turn reddish brown with age. The plants are much branched, 1-4 ft. tall, and occur in meadows and thickets at 5000-9000 ft.

FALSE DANDELION *AGOSERIS GLAUCA*

Plate 37, fig. 4

The golden-yellow heads of the False Dandelion look very like those of its namesake. They bloom in midsummer and are found on plants 1-3 ft. tall, in mountain meadows and along brook-banks at 8000-11000 ft.

GOATSBEARD, SALSIFY *TRAGOPOGON PORRIFOLIUS*

Plate 37, fig. 5

The Goatsbeard or Salsify bears large purple flower-heads with yellow centers at the tips of stiff, straight stems, 2-4 ft. tall. The plants have escaped from cultivation and may be found blooming all summer, along roadsides and in meadows at 4000-7000 ft. The roots of the Salsify are edible and are marketed under the name of "Oyster Plant." The name "Goatsbeard" refer to the clusters of stiff hairy fruits.

Plate 37

ASTER FAMILY

- 1 Blazing Star: *Laciniaria punctata*
- 2 Blue Lettuce: *Lactuca pulchella*
- 3 Sheath Flower: *Coleanthus grandiflorus*
- 4 False Dandelion: *Agoseris glauca*
- 5 Goatsbeard, Salsify: *Tragopogon porrifolius*
- 6 Rose Thistle: *Carduus undulatus*
- 7 Hawksbeard: *Crepis runcinata*



ROSE THISTLE *CARDUUS UNDULATUS*

Plate 37, fig. 6

The Rose Thistle is so named on account of the bright rose-purple flower-heads, which bloom in summer and autumn. The plants are 2-5 ft. tall and grow on plains, prairies and foothills at 5000-7000 ft. The gray-green foliage is very spiny, but when bruised to destroy the spines forms good food for cattle. Donkeys eat the plants, spines and all, and seem to relish them. The Thistle is the badge of Scotland.

HAWKSBEARD *CREPIS RUNCINATA*

Plate 37, fig. 7

The Hawksbeard has dandelion-like flower-heads of a golden yellow, which bloom in midsummer. The plants grow 1-2 ft. tall in mountain meadows and bogs at 8000-11000 ft.

PRAIRIE GOLDENROD *SOLIDAGO MISSOURIENSIS*

Plate 38, fig. 1

The flower clusters of the goldenrods vary from rather slender, stiff spikes, which give the name to the group, to large, spreading, feathery panicles. The Prairie Goldenrod belongs to the latter class and is only medium-sized, both as to flower-clusters and plants, which are 8 in.-2 ft. tall. It blooms from midsummer to autumn and is most at home on the prairies, though it also occurs in meadows and on gravel-slides at 3000-10000 ft. The Goldenrod is the state flower of Nebraska. The botanical name for the genus comes from the Greek "to make whole" which refers to the healing properties formerly attributed to the plant.

PUSSY'S TOES *ANTENNARIA DIOECA*

Plate 38, fig. 2

The soft fuzzy balls that give this plant its name are the pistillate or

Plate 38

ASTER FAMILY

- 1 Prairie Goldenrod: *Solidago missouriensis*
- 2 Pussy's Toes: *Antennaria dioeca*
- 3 Daisy: *Erigeron macranthus*
- 4 Purple Aster: *Machaeranthera Bigelovii*
- 5 Leafy Aster: *Aster foliaceus*
- 6 Gold-top: *Gutierrezia sarothrae*
- 7 Golden Eye: *Chrysopsis villosa*
- 8 Gum Weed: *Grindelia squarrosa*



seed-bearing flowers, while the staminate or pollen-bearing ones grow in heads on other stems. The botanical name for the genus refers to the fact that the protruded brown anthers of the staminate heads sometimes resemble the antennae of insects. The heads are creamy white with rose-colored bracts enclosing them at the base, and bloom in spring and early summer. The plants are 2-15 in. tall and grow on prairies and in meadows and aspen woodland at 3000-10000 ft. The leaves are gray from the white woolly hairs covering them, and grow in clusters at the base of the flowering stems. These clusters usually form dense mats, the leaves of which are sometimes chewed by children as Indian Tobacco or Ladies' Tobacco.

DAISY *ERIGERON MACRANTHUS*

Plate 38, fig. 3

This Daisy has yellow disks surrounded by blue-purple rays. The name is a corruption of Day's Eye which refers to the resemblance of the yellow center and its rays to the sun and its rays. The plants grow 1-3 ft. tall in meadows, fir forests, aspen woodlands and on gravel-slides at 5000-10000 ft. and bloom in midsummer. They are beautiful enough to be given a place in the garden.

PURPLE ASTER *MACHAERANTHERA BIGELOVII*

Plate 38, fig. 4

The Aster differs from the Daisy in having fewer and broader ray-flowers. This Aster has purple rays and yellow disks. It grows 1-4 ft. tall in meadows and on gravel-slides at 6000-10000 ft. and blooms in midsummer.

LEAFY ASTER *ASTER FOLIACEUS*

Plate 38, fig. 5

The heads of the Leafy Aster have yellow disk-flowers and red-purple rays. They bloom from midsummer to autumn. The plants grow 6 in.-2 ft. tall in meadows and aspen woodlands at 7000-11000 ft.

ASTER FAMILY

The word "aster" comes from the Latin for "star" and refers to the rays surrounding the yellow center.

GOLD-TOP *GUTIERREZIA SAROTHRAE*

Plate 38, fig. 6

The slender yellow heads of Gold-top grow in dense clusters on plants 1-3 ft. high. They bloom from midsummer to autumn and may be found on prairies and plains at 3000-8000 ft. They are especially typical of pastures and over-grazed areas.

GOLDEN EYE *CHRYSOPSIS VILLOSA*

Plate 38, fig. 7

The name "Golden Eye" is a direct translation of the scientific name of the genus. The flowers-heads are entirely golden-yellow, ray-flowers as well as disk-flowers, and they bloom in midsummer. The plants are low-growing, 1-2 ft. high, and occur on prairies and gravel-slides and in aspen woodlands at 3000-10000 ft.

GUM WEED *GRINDELIA SQUARROSA*

Plate 38, fig. 8

The foliage of the Gum Weed oozes a sticky substance that gives the plant its name. The flower-heads are golden-yellow and bloom from midsummer to autumn. The plants are branched and grow 2-4 ft. tall, along roadsides and in pastures at 3000-7000 ft. The entire plant is used in medicine for certain lung troubles, and a salve is made from it that is helpful in poison-ivy poisoning.

CONE FLOWER *RATIBIDA COLUMNARIS*

Plate 39, figs. 1, 6

The fertile flowers of the Cone Flower are grouped in cone-shaped heads, which give the plant its name. The broad ray-flowers vary

in color through shades of pure yellow to brilliant orange-red, and this form is sometimes cultivated in home gardens. The plants grow 1-3 ft. tall on prairies and plains at 3000-7000 ft., and bear flowers all summer.

GOLDEN GLOW *RUDBECKIA LACINIATA*

Plate 39, fig. 2

The native Golden Glow is related to the popular Golden Glow of the garden. It is a striking plant, 3-6 ft. tall and bears many large flower-heads with long, spreading or drooping yellow rays. They bloom in midsummer and are found in meadows and along brook-banks in aspen and fir forests at 5000-8000 ft.

BLACK-EYED SUSAN *RUDBECKIA HIRTA*

Plate 39, fig. 4

Black-eyed Susan, unlike its near relative Golden Glow, has a reddish-brown, almost black, center and orange-yellow rays. It is cultivated also, but occurs naturally in meadows and bogs and along brook-banks at 5000-11000 ft. The plants are 1-4 ft. tall and bloom all summer.

RAYLESS THELESERMA *THELESERMA GRACILE*

Plate 39, fig. 3

As the name indicates, the Rayless Thelesperma has heads of fertile flowers only, ray-flowers being lacking. The heads are grouped in graceful clusters on slender stems, 2-4 ft. tall, and bloom all summer. The plants occur on prairies and plains at 3000-8000 ft.

RAYED THELESERMA *THELESERMA TRIFIDUM*

Plate 39, fig. 8

The Rayed Thelesperma, in contrast to the one above, has broad yellow ray-flowers around a yellow center. It is a relative of *Coreopsis*

Plate 39

ASTER FAMILY

- 1, 6 Cone Flower: *Ratibida columnaris*
- 2 Golden Glow: *Rudbeckia laciniata*
- 3 Rayless Thelesperma: *Thelesperma gracile*
- 4 Black-eyed Susan: *Rudbeckia hirta*
- 5 Sun Spots: *Gymnolomia multiflora*
- 7 Sunflower: *Helianthus petiolaris*
- 8 Rayed Thelesperma: *Thelesperma trifidum*



and should also be cultivated in home gardens. The plants are 1-3 ft. tall and are found along roadsides and in pastures and fields at 3000-7000 ft., blooming all summer.

SUN SPOTS *GYMNOLOMIA MULTIFLORA*

Plate 39, fig. 5

The heads of Sun Spots are yellow throughout and bloom all summer. The plants are 2-5 ft. tall and grow on prairies and foothills at 5000-7000 ft.

SUNFLOWER *HELIANTHUS PETIOLARIS*

Plate 39, fig. 7

One scarcely needs an introduction to the cheery Sunflower which overruns roadsides and fallow fields everywhere at 3000-8000 ft. The plants are 2-5 ft. tall and bear flowers all summer. This species is the western form of the common sunflower, *Helianthus annuus*. The latter was held in high veneration by the ancient Peruvians and Mexicans, being used by them as a sacred and artistic emblem. It also figures in Greek mythology. The farmer of today, however, regards it quite otherwise when it invades his cultivated fields. It is, nevertheless, the state flower of Kansas. The name Sunflower was given this plant under the impression that the heads turn their faces always towards the sun and follow it in its daily course. This is not the case, however, for though the heads of a field of sunflowers are usually turned in the same direction, this is due to the effect of the prevailing wind rather than to sunlight.

The common sunflower is cultivated for the sake of the honey and wax which are obtained from the flowers by the bees, and also for its seeds which are used in various ways. They furnish feed for domestic and farm animals, or are ground and made into cakes, or roasted and used as coffee. In Russia they are sold in the streets and eaten as nuts. An oil also is obtained from them that is said to be equal to olive oil.

Plate 40

ASTER FAMILY

- 1 Bur Marigold: *Bidens levis*
- 2 Mountain Arnica: *Arnica cordifolia*
- 3 Gaillardia: *Gaillardia aristata*
- 4 Butterweed: *Senecio Fendleri*
- 5 Goldweed: *Ximenesia encelioides*
- 6 Actinella: *Actinella Richardsonii*
- 7 Dwarf Sunflower: *Helianthella Parryi*



BUR MARIGOLD *BIDENS LEVIS*

Plate 40, fig. 1

The bright yellow heads of the Bur Marigold may be found blooming all summer in marshes and ditches at 3000-6000 ft. The plants are 1-4 ft. tall. The names, both common and botanical, refer to the tooth-like spines on the end of the seed-like fruits.

MOUNTAIN ARNICA *ARNICA CORDIFOLIA*

Plate 40, fig. 2

This native Arnica is a close relative of *Arnica montana*, which furnishes the well-known tincture that is applied to bruises and sprains. It has been employed as a stimulant in low fevers, but does not appear to have any value when used internally. The Mountain Arnica occurs in fir, spruce and aspen forests at 7000-12000 ft. The heads are yellow-centered and yellow-rayed, and bloom all summer on plants 1-2 ft. high.

GAILLARDIA *GAILLARDIA ARISTATA*

Plate 40, fig. 3

Gaillardia bears very large heads with reddish-brown centers and many yellow or orange rays. They bloom all summer. The plants grow 1-3 ft. tall and may be found on prairies, and in meadows and aspen woodlands at 7000-10000 ft. The Gaillardias are frequently cultivated in gardens.

BUTTERWEED *SENECIO FENDLERI*

Plate 40, fig. 4

The yellow heads of the Butterweed are quite small but are grouped in large clusters on stems 6 in.-2 ft. tall. They bloom in midsummer and are found on foothills and gravel-slides at 7000-10000 ft.

ASTER ORDER

GOLDWEED *XIMENESIA ENCELIOIDES*

Plate 40, fig. 5

The heads of the Goldweed have yellow centers and yellow, toothed rays, and they bloom all summer. The plants are 2-5 ft. tall, growing along roadsides and in fallow fields at 3000-7000 ft.

ACTINELLA *ACTINELLA RICHARDSONII*

Plate 40, fig. 6

The yellow heads of *Actinella* are small and grouped in open clusters on stems 6 in.-2 ft. tall. They bloom in early and midsummer and are found on plains and foothills at 5000-8000 ft. This species of *Actinella* is sometimes called the "Colorado Rubber Plant," but it does not produce rubber in sufficient quantities to be commercially valuable.

DWARF SUNFLOWER *HELIANTHELLA PARRYI*

Plate 40, fig. 7

The heads of the Dwarf Sunflower are entirely yellow. They are borne on slender stems 1-3 ft. tall and bloom in midsummer. They may be found in spruce and aspen forests at 7000-10000 ft.

BAHIA *BAHIA DISSECTA*

Plate 41, fig. 1

The heads of *Bahia* have large yellow centers and very short yellow rays. They grow on branching stems 1-4 ft. high and bloom in midsummer. The plants may be found on foothills and gravel-slides at 5000-9000 ft.

ACTINELLA *ACTINELLA ACAULIS*

Plate 41, fig. 2

Actinella, like *Bahia*, has large yellow centers and short yellow rays. The plants are unbranched and grow 6-18 in. tall. They bear

flowers in early summer and occur on prairies, plains and foothills at 3000-8000 ft.

SNEEZEWEED HELENIUM HOOPESII

Plate 41, fig. 3

The heads of the Sneezeweed are large and orange-yellow. They grow on stiff stems 2-6 ft. tall and bloom all summer. The plants are found in spruce forests, aspen woodlands and subalpine meadows at 9000-12000 ft. They are poisonous to stock. The common name has reference to the effect that the strong odor of the flowers have on some people.

CREAM TIPS HYMENOPAPPUS TENUIFOLIUS

Plate 41, fig. 4

The yellow heads of the Cream Tips are without ray-flowers. They grow on slender stems 1-4 ft. tall and bloom in spring and midsummer. The plants have very finely cut leaves and are found on prairies, plains and foothills at 3000-7000 ft.

TAPER LEAF PERICOME CAUDATA

Plate 41, fig. 5

The Taper Leaf is a bushy ornamental plant covered in midsummer and autumn with open clusters of fragment yellow flower-heads. The tips of the leaves are narrowed to a long, slender point and this character is expressed in both the botanical and common names. The bushes grow 3-6 ft. high, and 3-8 ft. wide and occur on foothills and gravel-slides at 6000-8000 ft.

MARIGOLD DYSODIA PAPPOSA

Plate 41, fig. 6

The wild Marigold looks like a tiny form of the garden Marigold and has a similar spicy fragrance. It grows 1 in.-1 ft. tall and is abundant along roadsides and in fallow fields and pastures at 3000-8000 ft.

Plate 41

ASTER FAMILY

- 1 Bahia: *Bahia dissecta*
- 2 Actinella: *Actinella acaulis*
- 3 Sneezeweed: *Helenium Hoopesii*
- 4 Cream Tips: *Hymenopappus tenuifolius*
- 5 Taper Leaf: *Pericome caudata*
- 6 Marigold: *Dysodia papposa*
- 7 Alpine Kobold: *Rydbergia grandiflora*



ALPINE KOBOLD RYDBERGIA GRANDIFLORA

Plate 41, fig. 7

This shaggy, gray-green little plant with its huge, hanging yellow head, often as broad as the stem is tall, is weirdly suggestive of fairy-folk. The stems grow 2-15 in. tall and bear flowers in midsummer. They are to be found only in alpine meadows at 10000-14000 ft.

LILY FAMILY

WILD ONION ALLIUM CERNUUM

Plate 42, fig. 1

The Wild Onion bears open clusters of rose-purple flowers that droop in the bud, but rise gradually as they bloom, until the fruits are erect. They blossom in midsummer and are found in foothills, meadows, and aspen and spruce woods at 5000-10000 ft. The plants grow 1-2 ft. tall, and the bruised foliage and bulbs have the characteristic onion odor. The genus is widely cultivated and furnishes several varieties of onion, chives, leek, garlic and shallot.

SPRING LILY ERYTHRONIUM PARVIFLORUM

Plate 42, fig. 3

The yellow flower of the Spring Lily droops from a slender stem, 6-15 in. tall and blooms in the spring. The plant consists merely of two broad but pointed leaves, besides the flowering-stalk, and is found in meadows and spruce woods at 8000-12000 ft. It certainly deserves a place among cultivated plants.

RED LILY LILIUM PHILADELPHICUM

Plate 42, fig. 4

The scarlet petals of the Red Lily are ornamented at their bases with dark reddish-brown spots that serve to direct visiting insects to

Plate 42

LILY FAMILY

- 1 Wild Onion: *Allium cernuum*
- 3 Spring Lily: *Erythronium parviflorum*
- 4 Red Lily: *Lilium philadelphicum*
- 5 Wand Lily: *Zygadenus elegans*
- 6 Mariposa Lily: *Calochortus Gunnisonii*

SPIDERWORT FAMILY

- 2 Spider Lily: *Tradescantia virginiana*



the honey. The blossoms are large and conspicuous and occur singly at the tips of stiff stems, 2-4 ft. tall. They come into bloom in early summer and midsummer, and are found in bogs and along brook-banks at 7000-11000 ft. The Red Lily is very like the Tiger Lily of the garden and should be given a place there also, though it is not as yet widely cultivated.

WAND LILY *ZYGADENUS ELEGANS*

Plate 42, fig. 5

The cream-colored blossoms of the Wand Lily are grouped in open spikes on straight slender stems 4 in.-2½ ft. tall. They bloom in midsummer in meadows and spruce and aspen woods at 7000-12000 ft. The Wand Lily is related to the poisonous Death Camas, and is probably poisonous also.

MARIPOSA LILY *CALOCHORTUS GUNNISONII*

Plate 42, fig. 6

This Mariposa Lily is usually white, though delicate lilac blossoms are sometimes found. The petals are ornamented with various markings which give point to the common name of the genus which means "butterfly." The plants grow 1-4 ft. tall in foothills, meadows and aspen forests at 4000-11000 ft. and bear flowers all summer long. The genus is widely distributed and contains many beautiful species and varieties of striking colors, which should be more generally cultivated.

SPIDERWORT FAMILY

SPIDER LILY *TRADESCANTIA VIRGINIANA*

Plate 42, fig. 2

The pink or blue-purple flowers of the Spider Lily open in the morning and wither soon afterwards. They are grouped in open clus-

ters on stiff stems with long, grass-like leaves, and bloom from spring to midsummer. The plants grow in clumps, 1-5 ft. tall, on prairies and foot-hills at 3000-7000 ft. The common name refers to the cobwebby hairs on the stamens. The Spider Lily should certainly be cultivated in home gardens.

IRIS FAMILY

BLUE-EYED GRASS *SISYRINCHIUM ANGUSTIFOLIUM*

Plate 43, fig. 1

The Blue-eyed Grass is not a grass at all, but is so called on account of the grass-like leaves. The blue-purple, starry blossoms grow in loose clusters on stiff stems, and bloom from spring to midsummer. They remain open but a few hours in the morning withering as the day advances. The plants are 6-18 in. tall and are found on prairies, and foothills and in mountain meadows at 3000-10000 ft.

IRIS, BLUE FLAG *IRIS MISSOURIENSIS*

Plate 43, fig. 5

The large, pale blue to purple blossoms of the Iris bloom in spring and summer, on brook-banks and in meadows at 3000-10000 ft. The plants grow in masses, 1-3 ft. tall, and sometimes carpet the floor of a mountain meadow. The botanical name for the Blue Flag is from the Greek for "rainbow" and refers to the many colors of the different species and varieties. These are cultivated and furnish some of our most beautiful garden plants. The earliest illustration of the Iris was made about the beginning of the sixth century A.D. in a work by Dioscorides. In this work, it was considered valuable as a source of drugs rather than as a garden plant, and the number of ailments for which iris preparations were prescribed is truly astonishing. At present, however, its medicinal value consists merely of an extract from the root, which is used as an emetic and cathartic. The seeds of some species are sometimes roasted and used in Great Britain as a substitute

for coffee. The orris root of commerce is supplied by *Iris florentina* which has a fragrant root. The Iris is the Fleur-de-lis of France, which was for long the royal emblem.

ORCHID FAMILY

CORAL ROOT CORALLORHIZA MULTIFLORA

Plate 43, fig. 2

The Coral Root receives its name from the white branching roots that resemble coral. The plant is a saprophyte, that is, it gets its food ready-made from decaying matter, and this accounts for the lack of green foliage. The plants are entirely reddish-purple, though the flower-petals are white with purple dots. They grow 6 in.-1 ft. tall, in spruce and fir woods at 7000-10000 ft. and bloom all summer.

YELLOW LADIES' SLIPPER CYPRIPEDIUM PUBESCENS

Plate 43, fig. 3

The botanical name for the Ladies' Slipper comes from the Greek for "sock" or "buskin," so that the fanciful resemblance of the flower to dainty footwear is indicated by both names. Though the sack-like lower petal of Yellow Ladies' Slipper is a bright yellow, the other two petals and the sepals are yellow-green with reddish markings. The flowers occur singly on stems 8-20 in. tall, and bloom in early summer. They are found in meadows and aspen woodlands at 6000-9000 ft.

RATTLESNAKE PLANTAIN PERAMIMUM REPENS

Plate 43, fig. 4

The Rattlesnake Plantain receives this name because of its peculiarly mottled leaves which resemble those of a plantain in shape, but which have markings very like those of a snake. The tiny white blos-

Plate 43

IRIS FAMILY

- 1 Blue-eyed Grass: *Sisyrinchium angustifolium*
- 5 Iris, Blue Flag: *Iris missouriensis*

ORCHID FAMILY

- 2 Coral Root: *Corallorhiza multiflora*
- 3 Yellow Ladies' Slipper: *Cypripedium pubescens*
- 4 Rattlesnake Plantain: *Peramium repens*
- 6 Fairy Slipper, Calypso: *Calypso borealis*



soms occur in crowded spikes on stems 2-8 in. tall and bloom in midsummer. The plants grow in fir and spruce woods at 9000-10000 ft.

FAIRY SLIPPER, CALYPSO CALYPSO BOREALIS

Plate 43, fig. 6

The fairy-like rose-purple blossoms of Calypso appear in early spring. They occur singly on stems 4-8 in. tall, in fir and spruce woods at 7000-10000 ft. The name "Calypso" is that of a nymph of Grecian legend, and seems well fitted to this dainty plant.



S0-BXH-962

